ATEC
TEST AND EVALUATION
COST MANAGEMENT

28 February 2000

Encl 1

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FOR THE *ATEC T&E*

COST MANAGEMENT

I.0 ATEC Test and Evaluation Business Area

1.1 Description

1.1.1 Business Area Name: Test and Evaluation
1.1.2 Address: Army Test and Evaluation Command (ATEC) HQ, Alexandria, Virginia 22302-1458
HQ POC: DCSOPS, 703-681-6836, DSN 761-6836, FAX 761-7584

1.2 Mission Statement: Plan, conduct and report developmental tests, independent operational tests, experiments, and integrated continuous evaluations of Army, Joint and multi-service systems and concepts in support of the combat, materiel and training development processes. Design and develop methodologies and test instrumentation; perform safety verifications.

1.3 Organizational Structure: ATEC is composed of three Subordinate Command Activities (SCA). See appendix A.

1.3.1 Number of employees. See Appendix A, Slides 1-12.
1.3.2 Management Structure. See Appendix A, Slides 1-12.
1.3.3 Organizational Chart: See Appendix A, Slides 1-12.

1.4 Business Area funding sources. See Appendix A, Slides 13-14.

1.5 Products and services. Products and services include system Evaluation Plans, system Evaluation Reports, test plans, test methodology studies, test incident reports, test reports, instrumentation development, and models and simulations. Actual laboratory and field tests/experiments of hardware and software systems/subsystems include: developmental tests, operational tests, advanced warfighting experiments, technology demonstrations, early user tests, production testing, and safety verification tests

1.6 Major Customers. All Battlefield Operating Systems, Program Executive Officers and program managers. Office of the Secretary of Defense, Director, Operational Test and Evaluation (D, OT&E). Training and Doctrine Command (TRADOC). Forces Command (FORSCOM). Other Services, Defense agencies, federal agencies, foreign governments and private industry.

2.0 Baseline Cost Management efforts

2.1 Overview of current Business Area Cost Management initiatives.

2.1.1 Current Cost Management Efforts.

In Developmental Testing cost management is performed through analysis of Direct Labor Hours (DLH) compiled by the Test Resource Management System (TRMS). The Developmental Test Command (DTC) also uses DLH

for planning, programming and budget requirements. DLH are used in a workload projection model driven by the funding of the Army Modernization Plan and predicts DTC's resource requirements within +/- 5%. DTC uses DLH for Test Center resource allocation based on workload in TRADOC mission areas (MA) from the Army Research, Development, and Acquisition (RDA) budget and other-than-Army RDA workload. DLH also support the DTC billing system. In addition to the DLH costs, some facilities and certain test types have standard test cost rates that are billed to the customer. These standard rates are based on direct consumption of resources e.g., electricity along with other ancillary variable indirect costs. (See Appendix B for additional discussion.)

In Operational Testing cost management is performed through analysis of data from the ATEC Decision Support System (ADSS) and ATEC's integration in the Test Schedule and Review Committee (TSARC). In support of OT&E, ATEC executes the TSARC process in coordination with the DA DCSOPS and produces the Five-Year Test Program. In this process, DA system priorities are used to determine OT&E priorities. The TSARC process includes costs associated with individual operational tests within identified time frames which are documented in Outline Test Plans (OTPs). The OTP costs are continually refined. (See Appendix C for additional details on ATEC's involvement in the TSARC process). Additionally in the OT area, approximately 44% of the Operational Test Commands (OTC's) FY 00 funding supports contracts for operational testing. These contracts specify deliverables (products) and include performance metrics that are the basis for contractor performance awards.

2.1.2 Existing Management Information Systems used to manage costs. ATEC HQ, OTC, and AEC use the ATEC Decision Support System (ADSS) to compare costs and workload information and make decisions. DTC uses the Test Resource Management System (TRMS).

2.1.3 Other Cost Management methodology. Semi-annual Command Program Budget Advisory Committee effort.

2.1.4 Software used. Various databases (ACCESS, EXCEL, etc) link to ADSS. Various software programs including SOMARDS, System 2000, and the TRMS are used at DTC. MS Office, Timeline Project Management Systems, and many internally developed databases are used throughout the command.

2.2 Employee Cost Management skills.

2.2.1 Management Level Skills Trained to do CM. Most managers are skilled and trained in process improvement management.

2.2.1.1 Number with Cost Management training. See para 2.2.1 above.
2.2.1.2 Number with On the Job Training. See para 2.2.1 above.

2.2.2 Staff level Cost Management Skills Trained to do other CM methodologies : Most staff are skilled and trained in process management.

2.2.2.1 Number with Activity Based Costing (ABC) training- DTC has one person formally trained.

2.2.2.2 Number with On the Job Training. ATEC has several financial, program and management analysts at the ATEC HQ, the SCA headquarters, and development and operational test centers who are capable of performing cost management analyses.

2.3 Existing Cost Accounting Systems. For OT&E, project cost estimating is accomplished through ADSS. ADSS is also used to document cost estimates of TSARC programs and supports development of the FYTP. For DT&E, test centers employ a variety of feeder accounting systems as necessary to support SOMARDS, DFAS systems, and TRMS. (Also see paragraph 2.1 above.)

2.3.1 Location. Appendix A describes the ATEC locations. Paragraph 2.01 and 2.03 describe the systems associated with those locations.

2.3.2 Type System. Management information automated systems include ADSS, TRMS, and SOMARDS and a variety of test center feeder accounting systems. SCAs and directorates also employ personal computer databases.

2.3.3 Methodology: Cost tracking and some process improvement.

2.3.4 Does it feed a Cost Management or Decision Support System? Yes – As described in 2.3 above.

2.4 Current Performance Management Systems.

2.4.1 Performance metrics used. Throughout ATEC the following metrics are employed: obligation and disbursement rates; personnel management metrics; customer satisfaction surveys, safety, and security metrics. For the following areas specific metrics are used: direct/indirect labor ratios.

2.4.2 Managing with performance metrics. Metrics are reviewed quarterly and used to identify areas requiring improvement and management emphasis.

2.4.3 Supporting the GPRA with performance measures. Though performance measures are used in ATEC, a formal program to support the GPRA is not in place.

2.4.4 Alignment of performance measures with cost management systems. After the establishment of performance measures, the measures will be applied to DT and OT cost management.

3.0 Full Implementation of Cost Management: Complete

4.0 Plan to Get from Baseline to Full Implementation: Complete

5.0 Special Considerations: None.

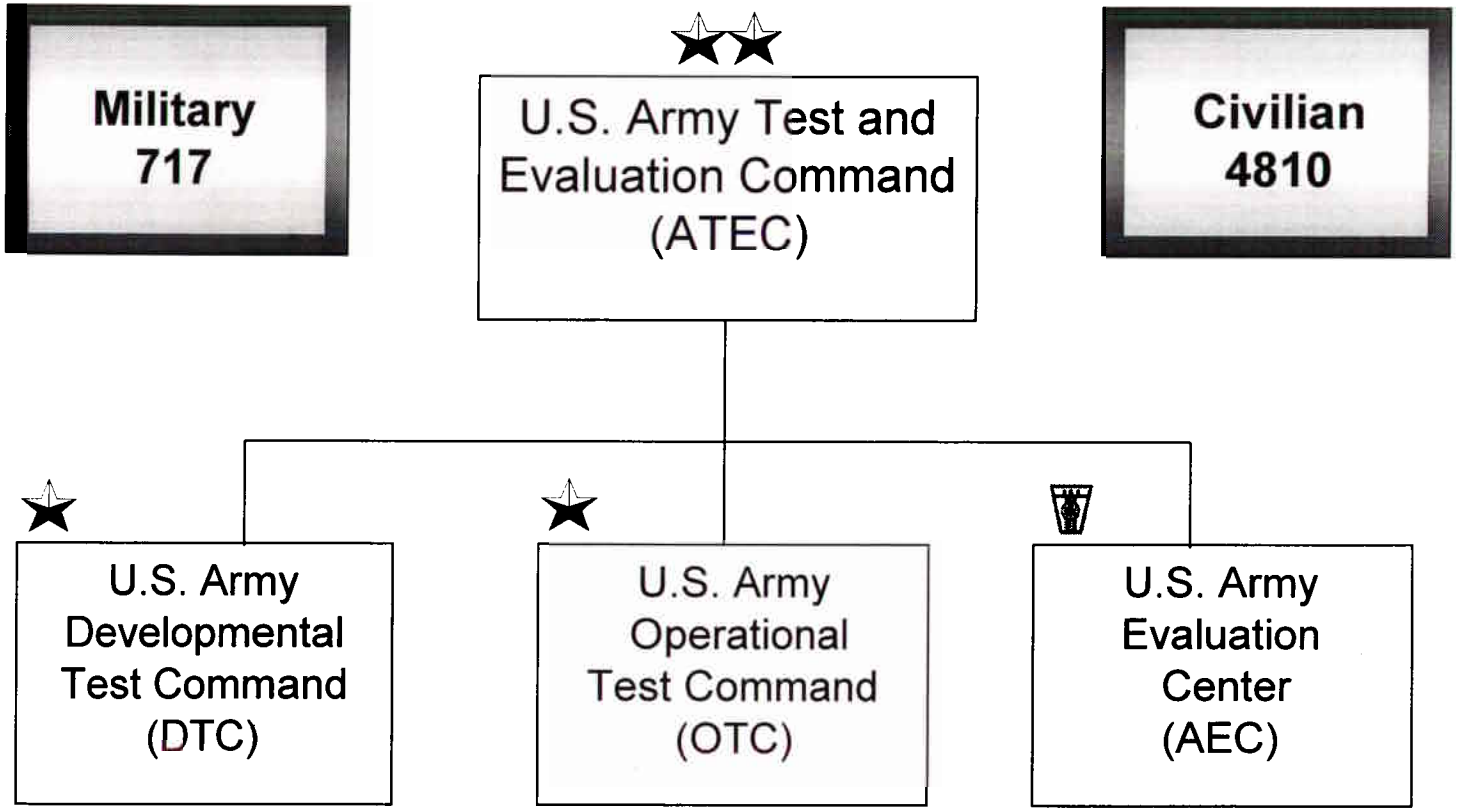
APPENDIX A

ATEC
ORGANIZATION, PERSONNEL,
AND RESOURCES
(as of 1 OCT 1999)

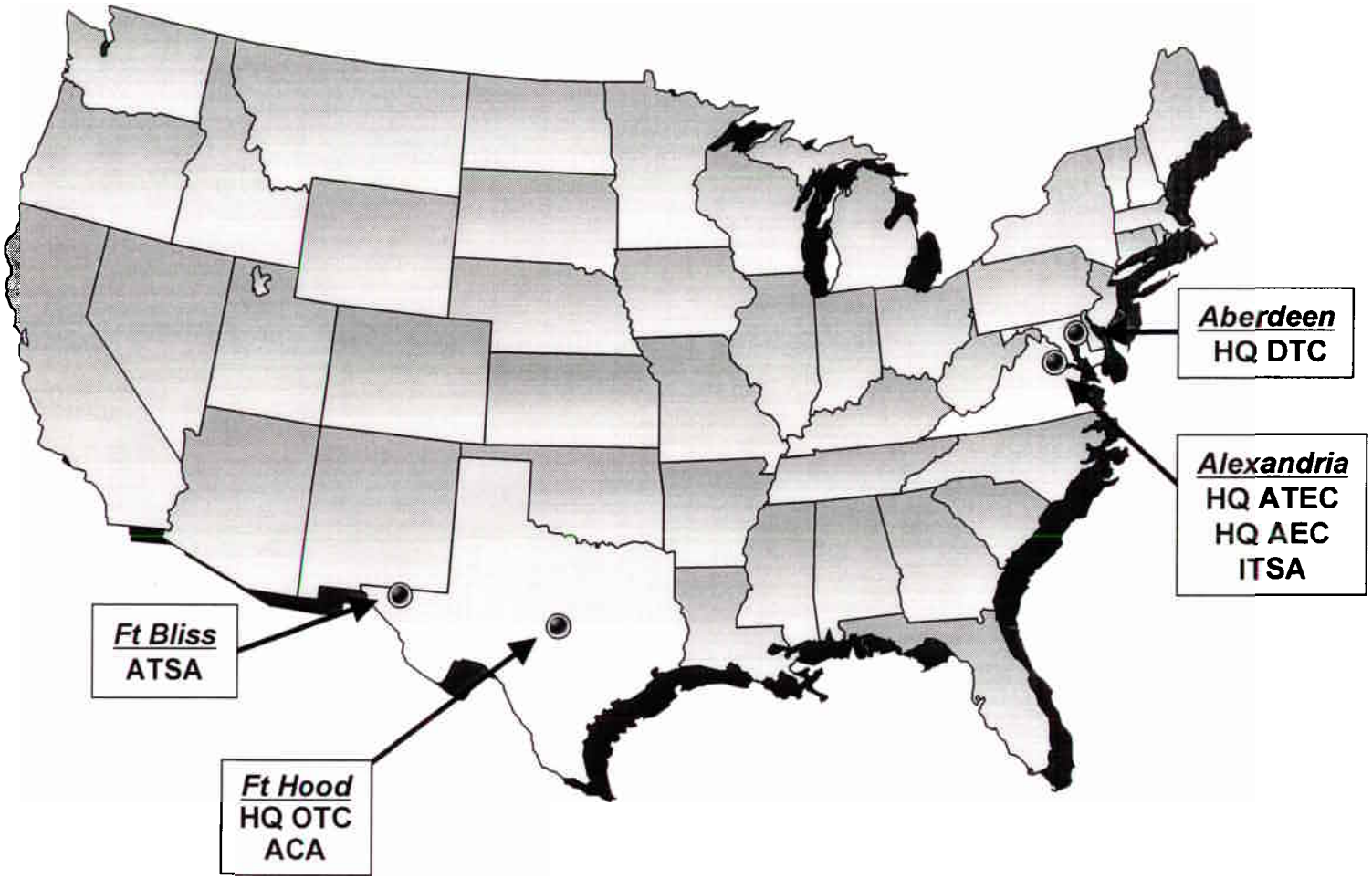
ATEC Mission

- Plan, conduct and report developmental tests, independent operational tests, experiments, and integrated continuous evaluations of Army, Joint and multi-service systems and concepts in support of the combat, materiel and training development processes
- Design and develop methodologies and test instrumentation
- Perform safety verifications
- Operate and modernize assigned installations, ranges and test centers

ATEC Organization



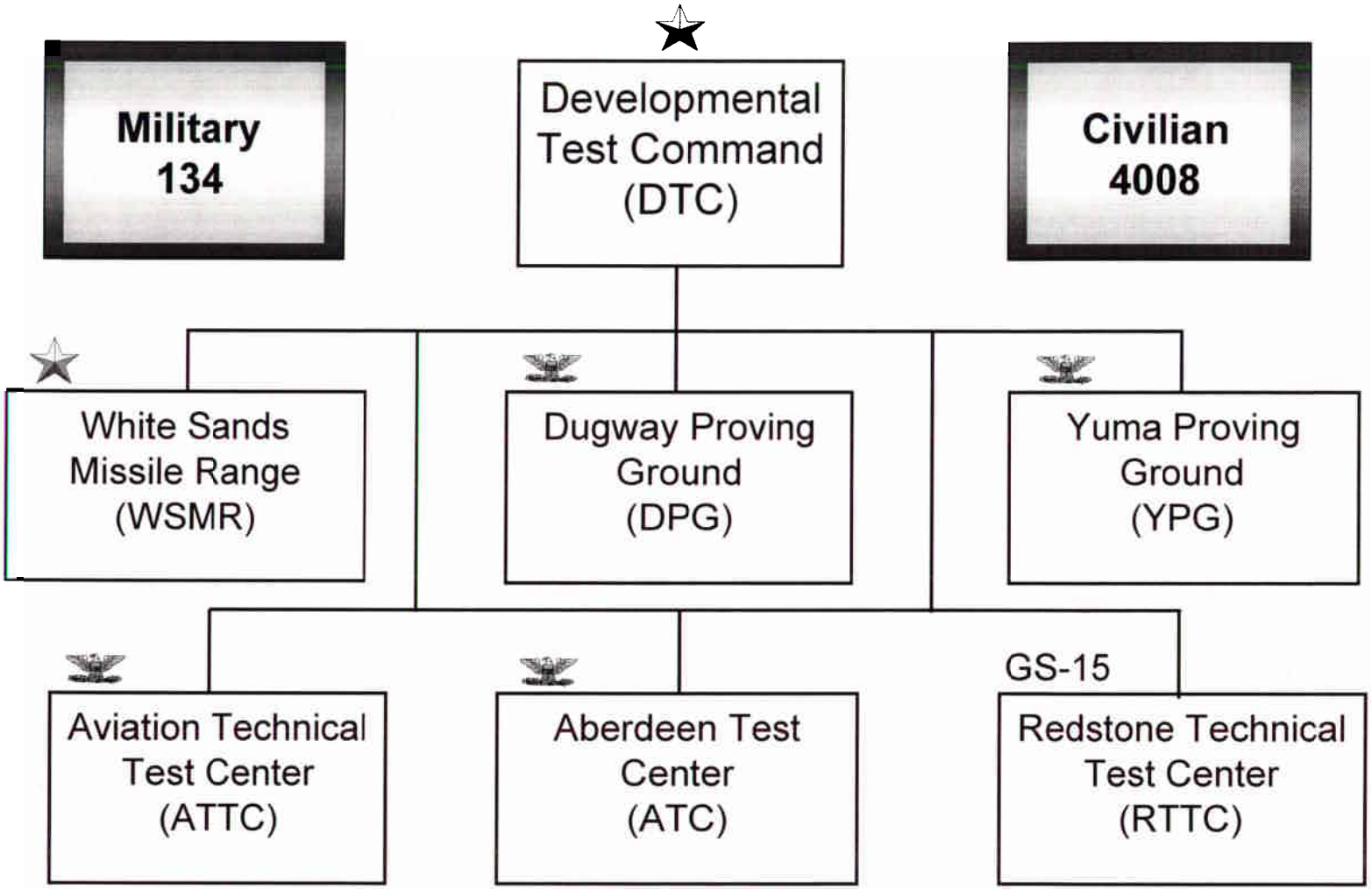
ATEC Locations



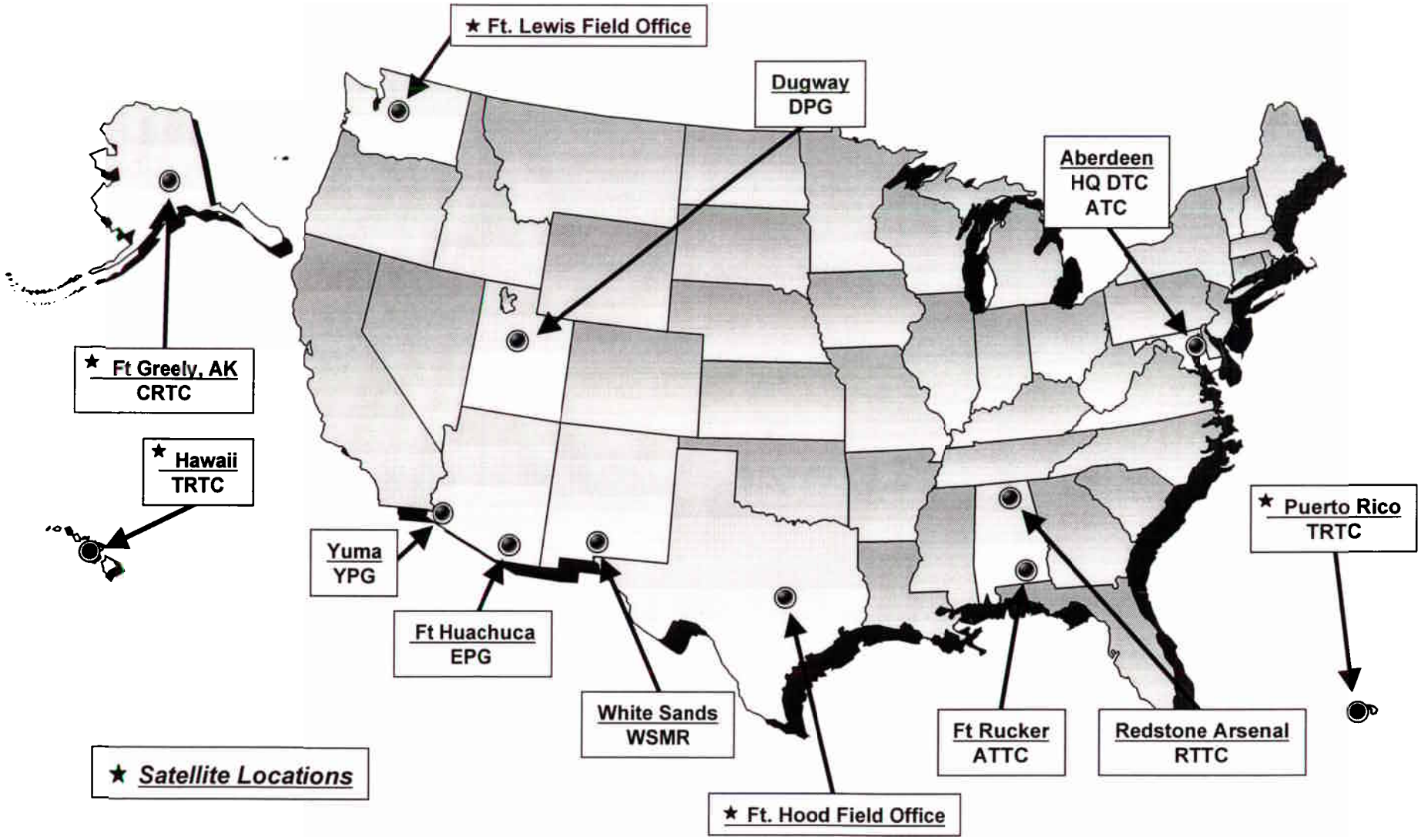
Developmental Test Command Mission

- Plan, conduct, and report tests (including developmental, production, live fire, and other tests) and simulations across the full spectrum of environments
- Verify the safety of military systems
- Develop and procure new test technology, test instrumentation, and related models and simulations
- Manage assigned installations

Developmental Test Command



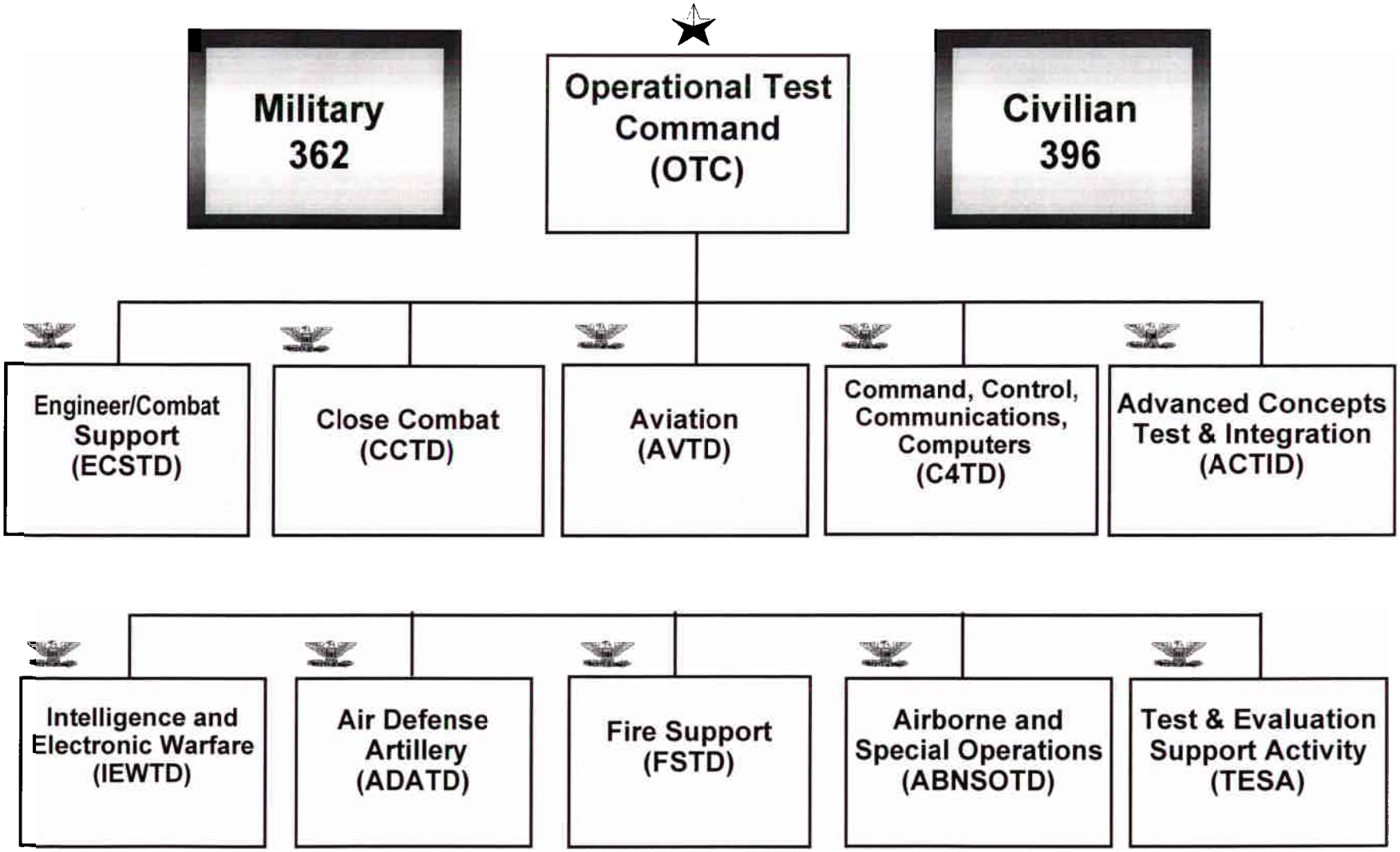
DTC Locations



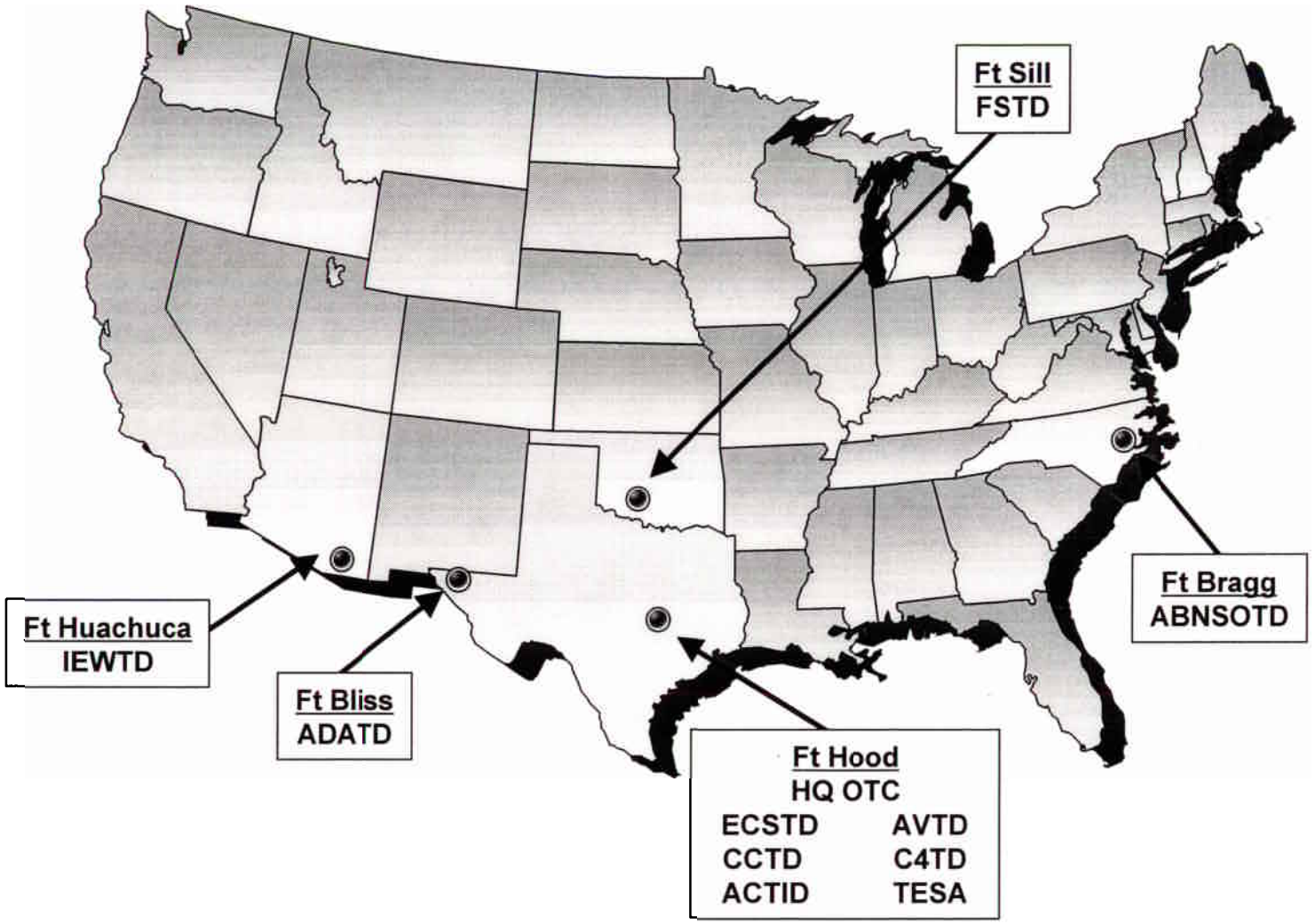
Operational Test Command Mission

Design, plan, conduct and report quality *independent* operational test and experiments as required to support the users, combat developers, & technology advancements of the United States Army in joint and multi-service environments

Operational Test Command

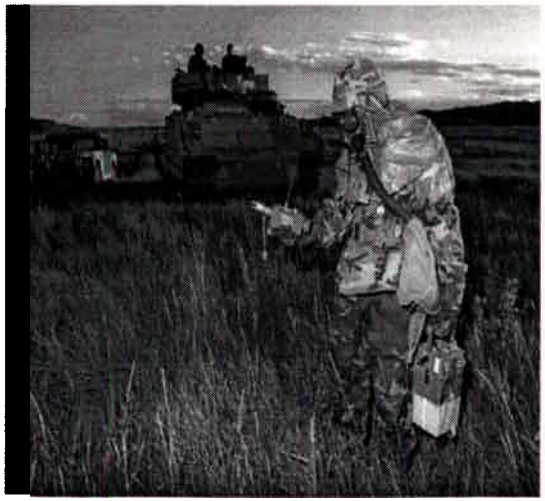


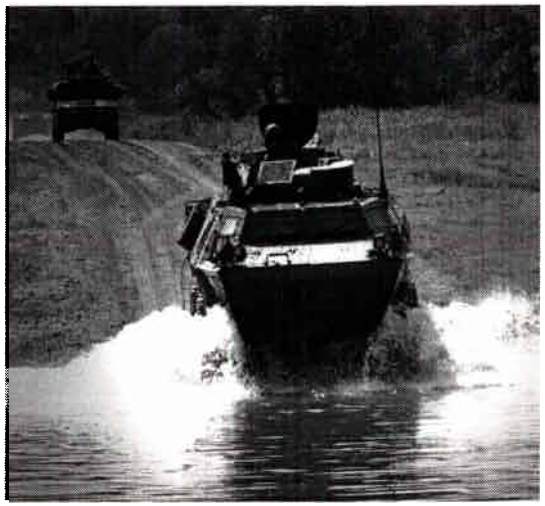
OTC Locations



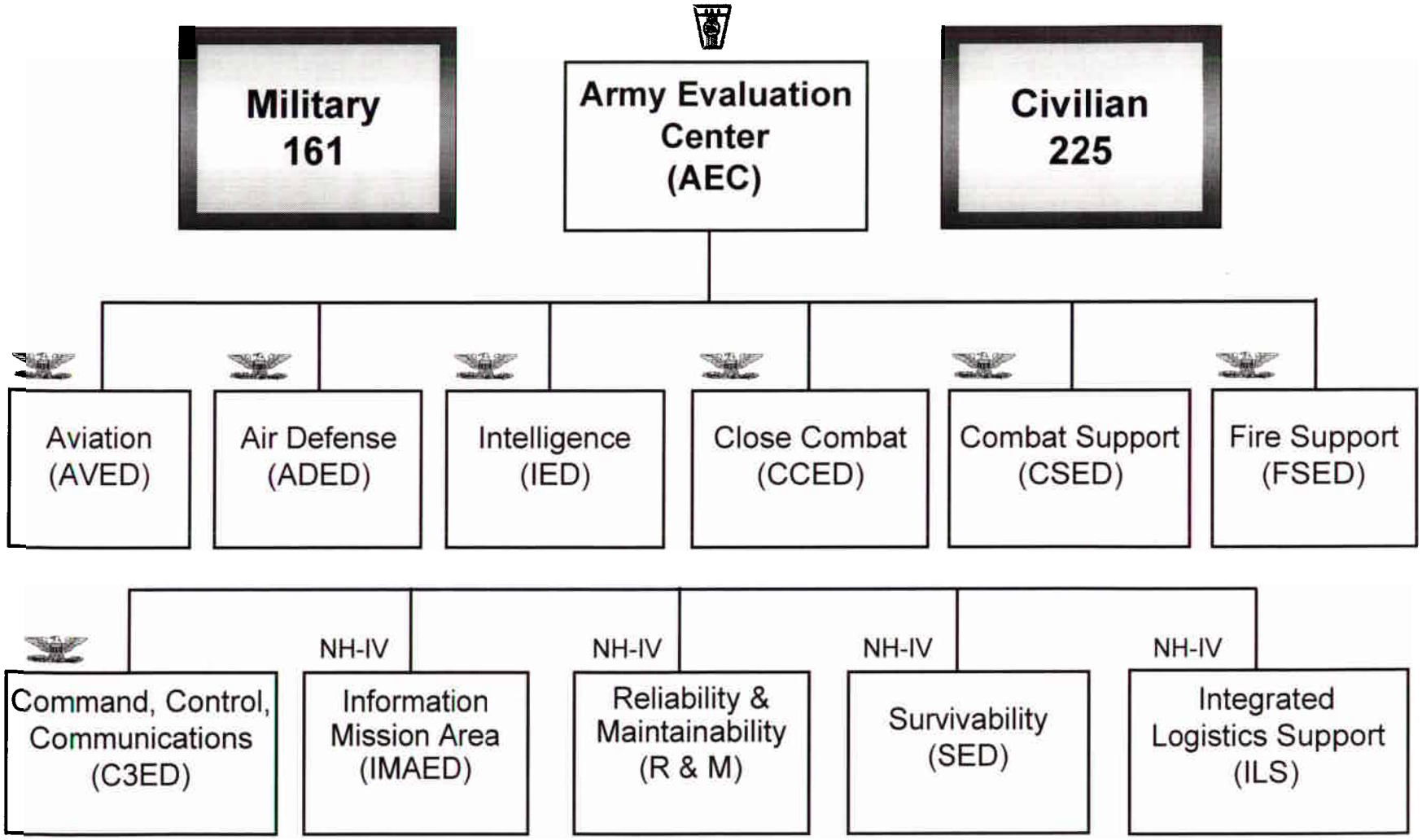
Army Evaluation Center Mission

- **Plan and execute Integrated Evaluations for all Army, selected multi-service & joint materiel and automated information systems**
- **Support key Army initiatives such as AWE, ATD, ACTD, WRAP, and Fast Track systems**
- **Conduct the Army Continuous Evaluation Program**
- **Conduct live fire evaluations on all covered systems**

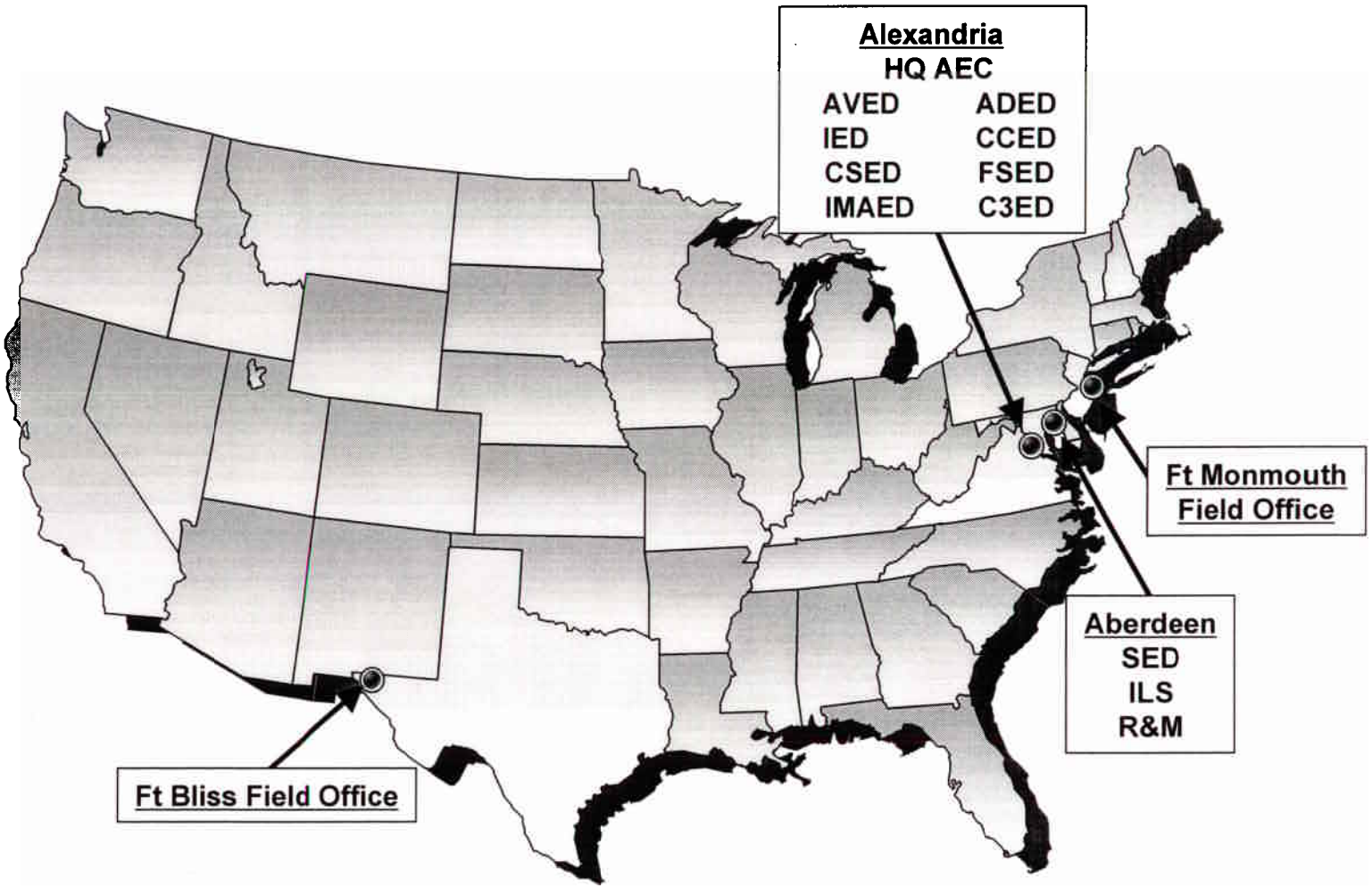




Army Evaluation Center



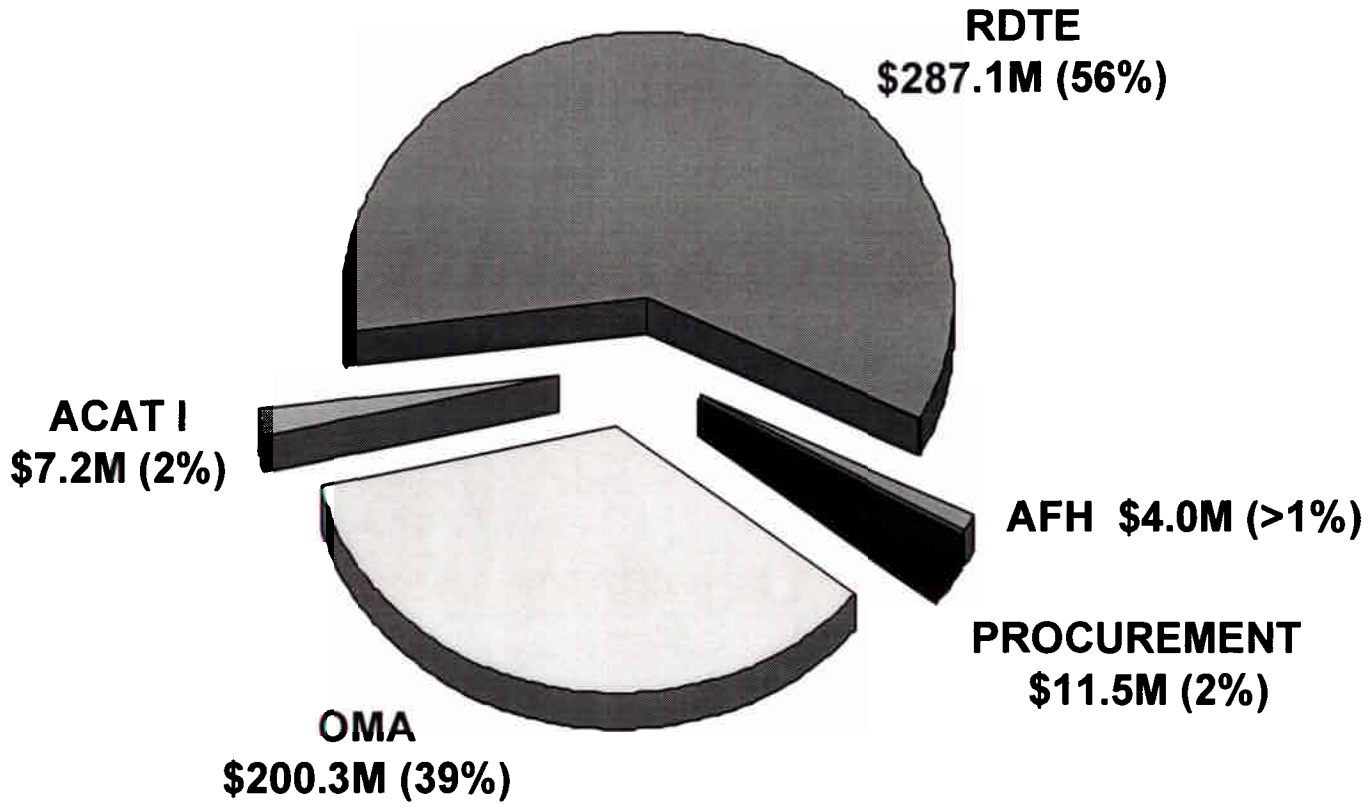
AEC Locations



FY00 Resources

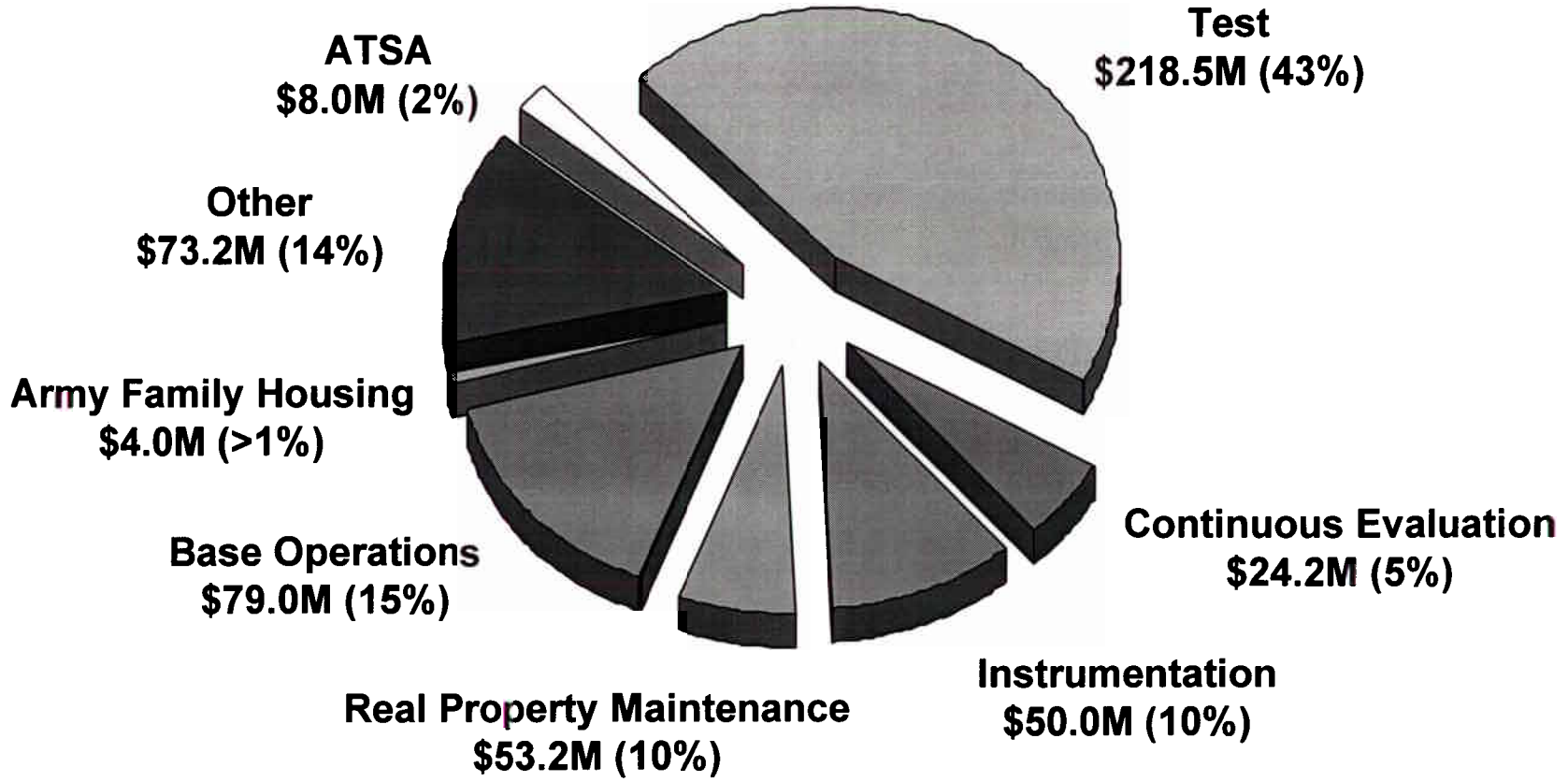
FY00 - $510.1M
(Excluding Reimbursable & Mil Pay, as of 18 Jan 00)

WHERE FUNDS COME FROM...



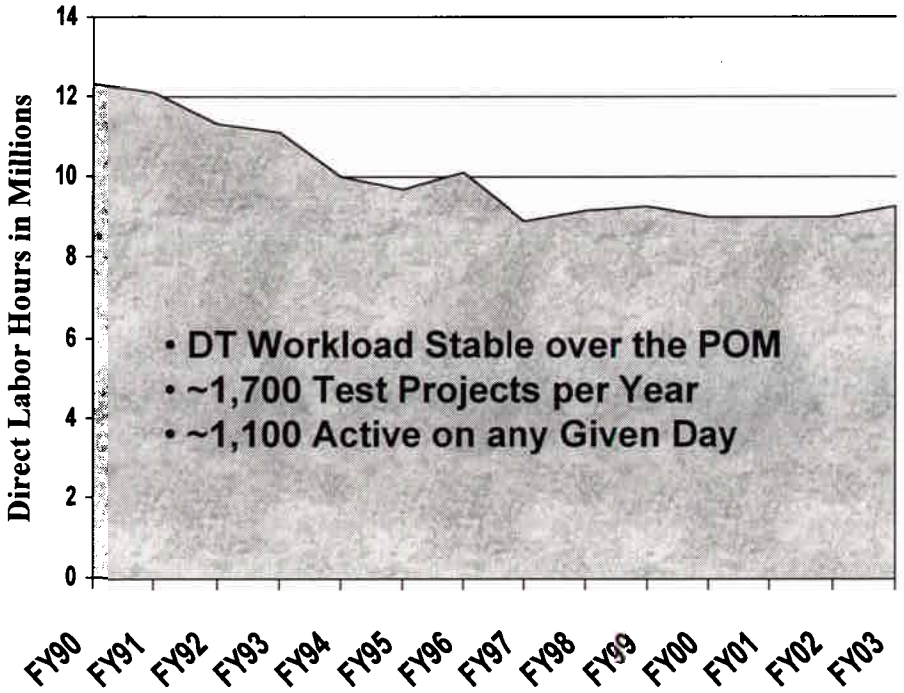
FY00 Resources

WHERE FUNDS GO...



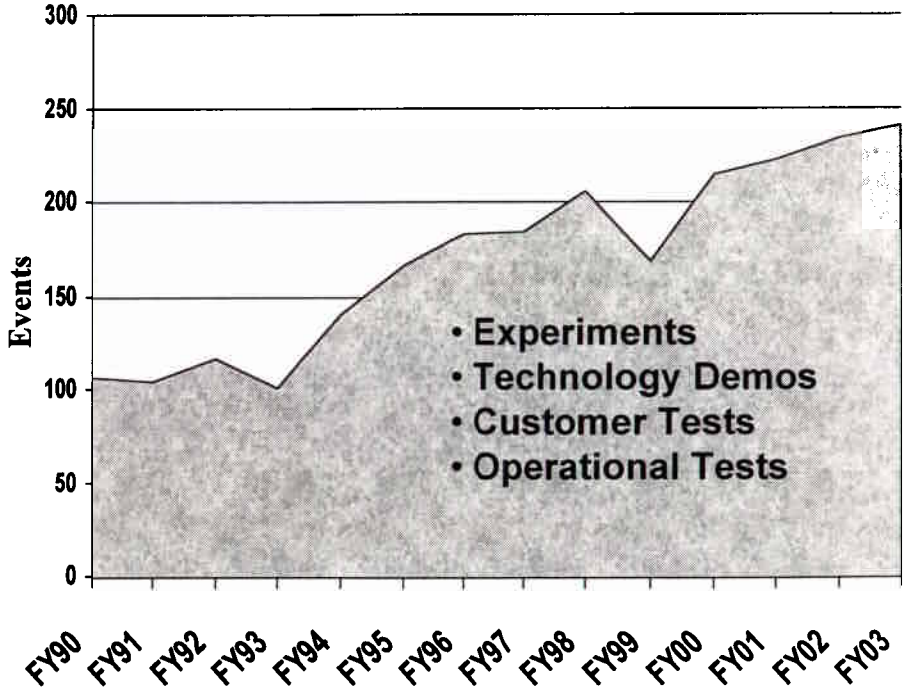
ATEC Workload

Developmental Testing



Fiscal Years

Operational Testing



Fiscal Years

APPENDIX B

DTC
DIRECT LABOR HOURS (DLH) -
MEASUREMENT, DISTRIBUTION, AND PROJECTION

CSTE-DTC-TTB
12 Jan 00

INFORMATION PAPER

SUBJECT: Workload - Measurement, Distribution, and Projection

FACTS:

a. The Developmental Test Command (DTC) measures its test mission workload in terms of Direct Labor Hours (DLH). A DLH is a measure of effort directly attributed to accomplishing a specific test project and paid for (reimbursed) by the test customer. DoD Directive 3200.11, Major Range and Test Facility Base (MRTFB) requires MRTFB activities; Aberdeen Test Center (ATC), Dugway Proving Ground (DPG), White Sands Missile Range (WSMR), and Yuma Proving Ground (YPG) to receive reimbursement from test customers for costs which "can be reasonably, economically, or conveniently identified to specific test programs or groups of similar test programs undergoing concurrent execution". This definition is directly applicable to civilian and contractor labor. Although military labor is not charged to customers, military hours worked on test projects are also documented and tracked as direct labor hours.

b. Executable workload is a measure of the demand for DTC's testing services in terms of DLHs. Work is only defined as executable if

(1) the test planning is complete,

(2) the test item is on-site, and

(3) customer funding is in hand.

c. Completed workload is captured in each test center's cost accounting system and interfaced into DTC's master test database (the Test Resource Management System (TRMS)) on a daily to monthly basis depending on the test center. DTC extracts data on completed workload in a variety of formats from TRMS to measure performance. Information on near-term workload is also extracted from TRMS, in the form of detailed cost estimates entered by test centers, in order to predict future workload.

d. DTC tests for a variety of customers, although most effort is on behalf of Army Materiel Command's MSCs and the DA Program Executive Officers (PEOs) for which the MSCs provide matrix support. AMC's Aviation and Missile Command (AMCOM) and Tank-Automotive and Armaments Command (TACOM) have traditionally been DTC's largest customers.

e. The TRMS database has the capability to accept test center estimates of future workload. However, due to the inherent uncertainty of the R&D process and constantly changing budget guidance for Program Managers, firm estimates are generally not available for more than the next 18 to 24 months. Since DTC must develop and defend upcoming institutional budgets, and future customer workload is a key element in that development, a methodology was developed to credibly forecast workload.

f. In 1989, the Test Business Management Division, Directorate for Test and Technology, developed a mathematical model for projecting workload. Historical workload levels and the Army Research, Development & Acquisition (RDA) budget are primary inputs. The basis for the model is a high correlation between DTC's total workload and the Army RDA budget. The Army RDA budget is stratified by type of funding (development and procurement) and mission area. Using TRMS, we stratify historical DTC workload into the same categories. The model scales historical, stratified workload in step with changes in the Army RDA budget, taking into account inflation and lag time for funds outlay.

g. The overall accuracy of this model has been very good at the composite DTC level (within +/- 6%). Individual test center projections have not been as accurate.

h. In addition to projecting future workload, the completed and/or estimated direct labor hour data are used:

(1) As an aid to test centers in developing test cost estimates and for customer billings at their test center.

(2) As an aspect of facility/program scheduling at test center level.

(3) As an aspect of workload assignment and resource allocation at both DTC HQ and test center levels.

(4) As a management indicator of personnel utilization (ratio of direct to total productive hours).

RELEASED BY:

ACTION OFFICER:

DSN 298-1421

Director of Test and Technology

APPENDIX C

Test Schedule and Review Committee
(TSARC)

TSARC Functions

- Review and coordinate resources to support user T&E
- Review test schedules to minimize test impacts on units providing support
- Review T&E funding requirements.
- Resolve conflicts between user test requirements and other missions.
- Establish user T&E priorities.
- Recommend OTPs for inclusion in the FYTP.
- Review and recommend approval of the FYTP.

TSARC Composition

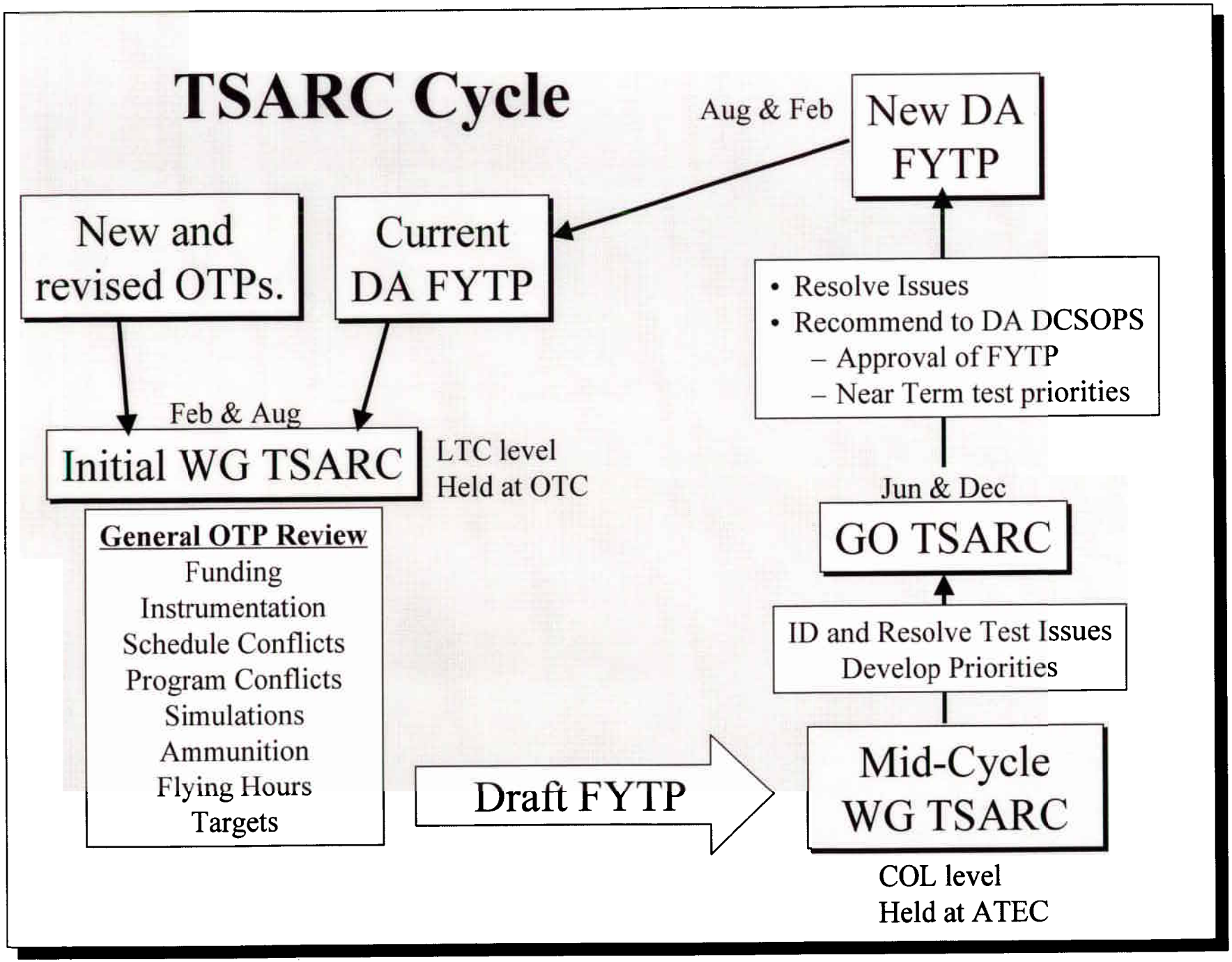
Chaired by CG, ATEC

Principal Membership

ASA(AL&T)	ASA(FM)	ODISC4
ODCSPER	ODCSINT	ODCSOPS
ODCSLOG	MEDCOM (OTSG)	
FORSCOM	USAREUR	USARPAC
USASOC	TRADOC	

Others

Staff agencies or commands which have responsibilities or resources involved in user tests.


TSARC Cycle
Aug & Feb
New DA FYTP
New and revised OTPs.
Current DA FYTP
• Resolve Issues
• Recommend to DA DCSOPS
– Approval of FYTP
– Near Term test priorities
Feb & Aug
Initial WG TSARC
LTC level
Held at OTC
Jun & Dec
GO TSARC
General OTP Review
Funding
Instrumentation
Schedule Conflicts
Program Conflicts
Simulations
Ammunition
Flying Hours
Targets
ID and Resolve Test Issues
Develop Priorities
Draft FYTP
Mid-Cycle WG TSARC
COL level
Held at ATEC

Department of the Army (DA)
Five Year Test Program (FYTP)

- Compendium of OTPs covering a five year period including unit test priorities for current and budget year.
  - OTPs in the FYTP for current and budget years become tasking documents for test support when FYTP is approved.
  - OTPs with test date beyond budget year are for planning.
- ATEC provides FYTP administration through the TSARC cycle.

Summary

- TSARC
  - Comprised of HQDA staff and MACOMs; chaired by CG ATEC.
  - Prioritizes and deconflicts user test resource requirements
  - Coordinated by ATEC and integrated with ATEC processes
  - Semi-Annual Cycle produces FYTP
- The Five Year Test Program (FYTP)
  - Approved by DA DCSOPS
  - Compendium of OTPs
    - Planning purposes for all others.
  - Published in hard copy and CD-ROM.

TSARC Products

- Initial TSARC Working Group Minutes
- Draft FYTP
- Mid-cycle WG TSARC Minutes
- Strawman priority lists
- Addendum to mid-cycle WG TSARC minutes
- GO TSARC minutes
- DA FYTP